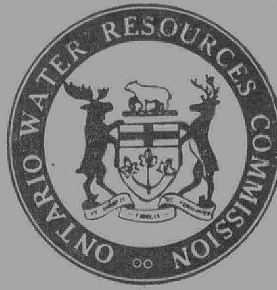


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O.W.R.C.  
Water Pollution  
Survey

THE  
ONTARIO WATER RESOURCES  
COMMISSION



WATER POLLUTION SURVEY

of the

HAMLET OF KILLARNEY

DISTRICT OF MANITOULIN

1969

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K341

R E P O R T

on a

SANITARY SURVEY

and

WATER POLLUTION SURVEY

of the

HAMLET OF KILLARNEY

DISTRICT OF MANITOULIN

Ontario Water Resources Commission

District Engineers Branch

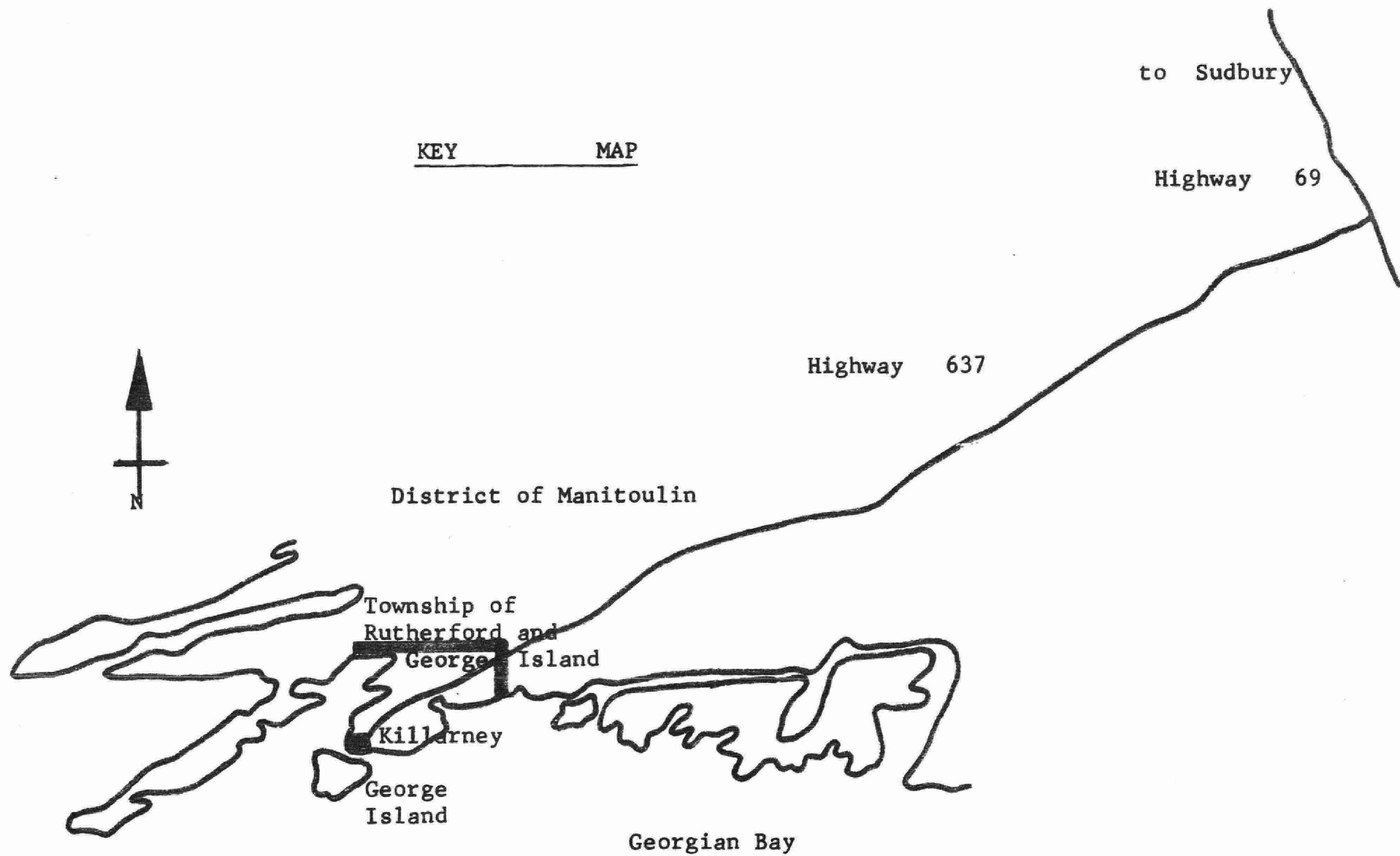
Division of Sanitary Engineering

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## R E P O R T

### ONTARIO WATER RESOURCES COMMISSION

#### INTRODUCTION

A water pollution survey and sanitary survey were conducted in the Hamlet of Killarney during the summer of 1969. Samples were obtained on July 22, 1969, for the former survey in an effort to locate and evaluate all existing sources of pollution and on July 23, 1969, samples for the latter survey were obtained in order to assess the quality of the existing drinking water supplies. Such surveys are performed routinely and on request by the OWRC's Division of Sanitary Engineering as a basis for determining water supply and sewage treatment requirements.

#### I GENERAL

The Hamlet of Killarney is located in the District of Manitoulin in the Township of Rutherford and George Island. The Hamlet is situated on the southern tip of a peninsula and can be reached via a secondary paved highway (Hwy. 637), located between Killarney and Highway 69. George Island, also located at the southern tip of the peninsula is isolated from Killarney by a narrow channel which serves as a mooring area for large cruisers and sailboats during the summer months.

Economically, the Hamlet of Killarney appears to be mainly dependent upon tourism as a major source of income, with some employment being provided by commercial fishing and a small

quarry operation which has recently re-opened. Main contributors to the Hamlet's economy consist of summer cottagers, large pleasure craft which stop over for short periods, and two lodges situated on the north shore of Killarney Channel that cater to tourists the year round.

The 1968 population of the Township of Rutherford and George Island as assessed in the 1969 Municipal Directory was 446. Based on 100 residences at 3.5 persons per residence, the population of the Hamlet of Killarney was estimated to be 350 persons.

## II PRIVATE SERVICES

At present, there are no municipal water works or sewage treatment facilities in the community. However, two private water works, one owned and operated by the Killarney Central Water Line Association, the other owned and operated by Peter Low, service approximately 50 per cent of the Hamlet.

Disposal of sanitary wastes is affected by individual septic tank systems. Storm water is discharged into Killarney Channel via a network of open ditches draining the built-up areas of the Hamlet.

A more detailed description of the above water works systems can be found in Table I and Circle Graphs A and B.

TABLE I  
SUMMARY OF INFORMATION OBTAINED DURING  
SANITARY SURVEY

Approximate No. of residences	100
Estimated population	350
Average lot size (in feet)	140 x 170
Average lot area (in square feet)	23,800
Drinking water sources	Killarney Channel Drilled Wells Dug Wells

<u>SYSTEMS</u>	<u>NO. OF CONNECTIONS</u>	<u>TREATMENT</u>
Killarney Central Water Line	36	Chlorination
Peter Low Water Line	17	Nil
Byron Tyson	2	Nil
C.W. Low	2	Nil
O. Panke	3	Nil
B. Roque	4	Nil
St. Josephs Convent	2	Nil

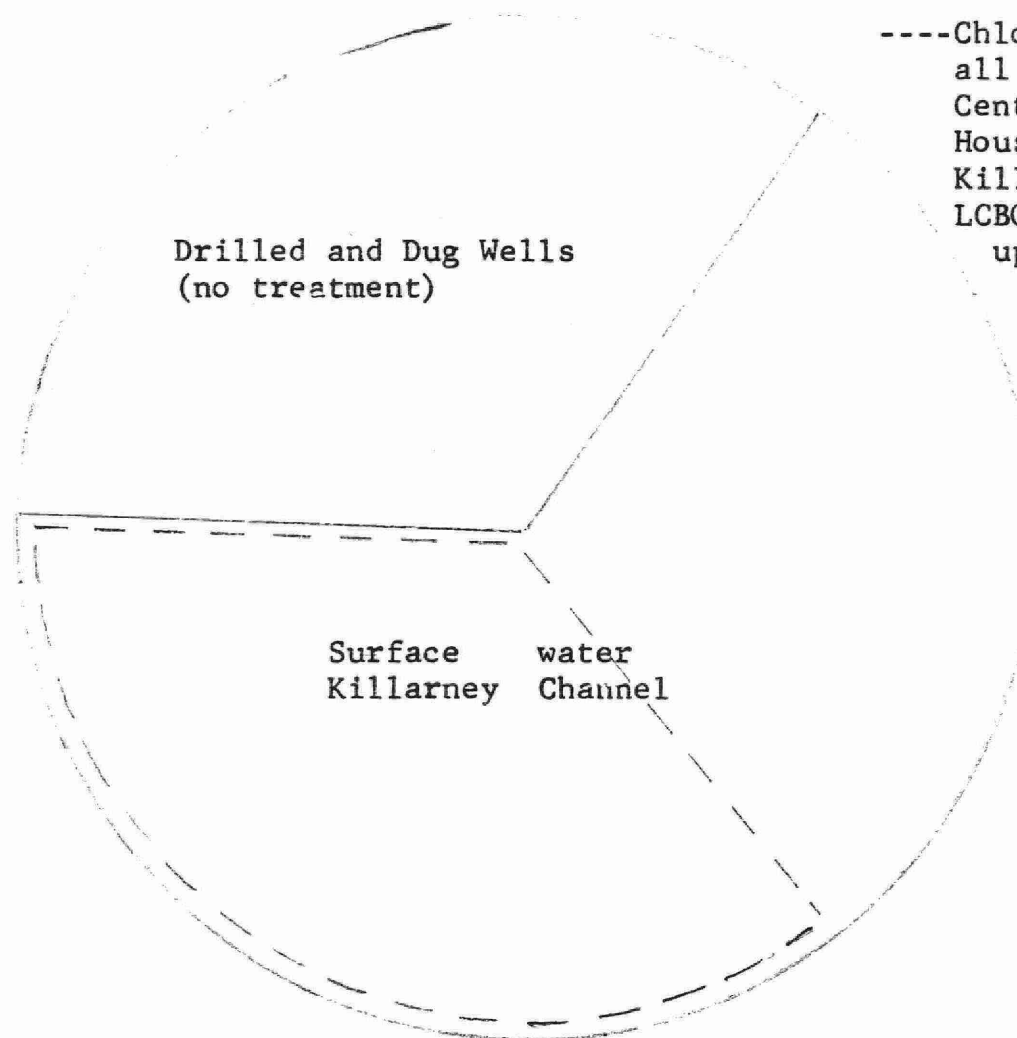
Note: All systems obtain water from Killarney Channel except Byron Tyson who utilizes a drilled well.

Sewage Disposal

Septic Tank, Pit Privy

CIRCLE GRAPH B

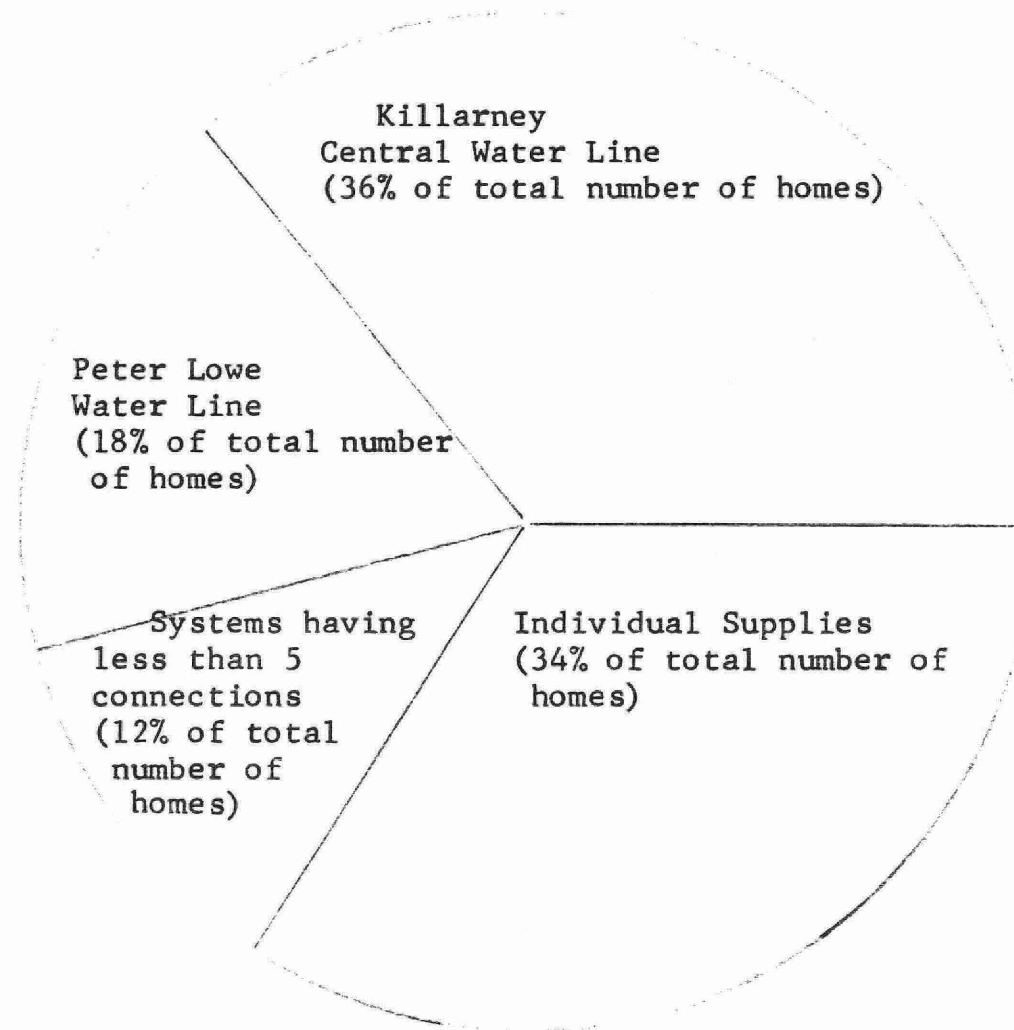
SOURCE OF SUPPLY AND TREATMENT



----Chlorination provided (includes all connections to Killarney Central Water Line, The Rock House Inn, Sportsman Inn and Killarney Mountain Lodge). LCBO hypochlorinator not hooked up.

CIRCLE GRAPH A

PERCENTAGE OF HOMES ON DIFFERENT SYSTEMS



### III WATER USES

Killarney Channel is primarily used as a source of supply for various water works systems\* and individual supplies located within the community. Secondary uses involve recreation and navigation during the summer months.

### IV SANITARY SURVEY

#### a) Field Work

The field work associated with this survey was carried out on July 23, 1969. Existing weather conditions were favourable, allowing the survey to be completed within the expected time. During the survey a total of 23 homes were visited representing approximately one quarter of the total number of residences located in Killarney. Thirteen bacteriological samples were collected in order to assess the drinking water quality of the two major water works systems and the individual supplies located throughout the community. Similarly, six chemical samples were obtained in order to determine and evaluate the chemical quality of both surface and subsurface drinking water supplies.

A copy of the information sheet used during the survey is appended to the report.

#### b) Presentation of Results

Analyses results of bacteriological samples obtained during the above survey indicated the presence of coliform

\*see Table I



organisms in approximately 40 per cent of the drinking water supplies sampled. The coliform counts ranged from 2 coliform organisms per 100 ml to 56 coliforms per 100 ml for untreated channel water and from 176 coliform organisms per 100 ml to 6100 coliform organisms per 100 ml for samples obtained from dug wells. Analyses results of the bacteriological samples obtained from the dug wells also revealed the presence of faecal coliforms. There were no coliform organisms present in the sample obtained from a drilled well and those samples obtained from treated surface water supplies.

A summary of the bacteriological analyses of the various drinking water supplies utilized in Killarney can be found in Table II.

The significance of laboratory analyses for the surveys is outlined in Appendix I.

Analyses results of the samples obtained from sub-surface drinking water supplies indicated the chemical quality to be generally satisfactory, with the exceptions of hardness and iron. The hardness ranged from 268 ppm in shallow wells to 275 ppm in deep wells. Results such as these, while indicating very hard water, do not present any real problems and are common to most subsurface supplies. Similarly, the iron content ranged from 0.4 ppm to 2.3 ppm indicating an iron level above the OWRC's recommended limit of 0.3 ppm. A concentration

TABLE II

## SUMMARY OF BACTERIOLOGICAL ANALYSES OF DRINKING WATER SUPPLIES

LOCATION	FAECAL COLIFORMS PER 100 ML	BACKGROUND COLONIES PER 100 ML	TOTAL COLIFORMS PER 100 ML
B. TYSON RESIDENCE			
DRILLED WELL (WASHING)	0	0	0
DUG WELL (DRINKING)	272	690,000	6,100
P. GREEN RESIDENCE	4	2,500	176
DUG WELL			
E. GODIN RESIDENCE			
CHANNEL WATER			
"BARREL SAMPLE"	0	440	2
T. DELAMORANDIERE RESIDENCE			
DUG WELL	0	220,000	1,100
M. ROQUE RESIDENCE			
LOWE SYSTEM	0	3,500	0
D. ROQUE RESIDENCE			
LOWE SYSTEM - CHANNEL	0	240,000	0
ROCK HOUSE INN			
CHANNEL - CHLORINATED	0	0	0
JACKMAN RESIDENCE - CHANNEL	0	300	0
B. ROQUE RESIDENCE - CHANNEL	0	1,800	56
E. ROQUE RESIDENCE - CHANNEL	0	6,400	30
OPP OFFICE - KILLARNEY CENTRAL WATER LINE			
CHANNEL - CHLORINATED	0	188	0
CONVENT - CHANNEL	0	2,400	0

of iron in water of 0.3 ppm and above can cause taste problems, discolouration of clothing and plumbing fixtures and incrustations in water pipes. The results of the analyses performed on samples obtained from residences using Killarney Channel as a source of supply were of a satisfactory chemical quality, being only moderately hard and having an iron content within the recommended limit.

A summary of the chemical analyses performed on the above samples are listed in Table III.

Further, the deleterious influences of certain constituents found in the above supplies can be found in Appendix I.

c) Explanation of Results

Results of the analyses of the bacteriological samples obtained during the survey indicated that the bacteriological quality of the surface and subsurface drinking water supplies differed greatly. Analyses of bacteriological samples obtained from residences utilizing Killarney Channel as a source of supply revealed the presence of coliform organisms in three of the nine samples collected. Similarly, analyses of bacteriological samples obtained from three shallow wells revealed a high level of both coliform and faecal coliform organisms in the water.

During the survey three dug wells were investigated.

TABLE III

## SUMMARY OF CHEMICAL ANALYSES OF DRINKING WATER SUPPLIES

LOCATION	HARDNESS AS CaCO <sub>3</sub>	ALKALINITY AS CaCO <sub>3</sub>	IRON AS FE	CHLORIDE AS CL	PH AT LAB	FLORIDE AS F	APPARENT COLOUR UNITS	TURBIDITY UNITS	MANGANESE AS MN	ZINC AS ZN	BARIUM AS BA	SELENIUM AS SE	ARSENIC AS AS
B. TYSON RESIDENCE													
DRILLED WELL (WASHING)	275	170	2.3	20	7.5	0.7	100	10	0.35	0.08	< 5	< 0.015	< 0.01
DUG WELL (DRINKING)	268	233	0.40	44	6.8	0.2	80	4	0.07	0.23	< 5	0.005	0.02
E. GODIN RESIDENCE	89	71	0.05	5	7.7	0.1	< 5	2	0.00	0.00	< 5	0.00	0.02
CHANNEL WATER													
"BARREL SAMPLE"													
M. ROGUE RESIDENCE	91	70	0.10	5	8.1	0.1	5	2	0.00	0.23	< 5	0.00	0.01
LOWE SYSTEM													
KILLARNEY CENTRAL	91	69	0.15	5	7.8	0.0	< 5	3	----	---	---	----	----
WATER LINE													
"CHLORINATED"													
BEACAGE RESIDENCE	94	72	0.05	5	7.8	---	< 5	1.1	----	---	---	----	----

\* ALL ANALYSES EXCEPT PH REPORTED IN PPM UNLESS OTHERWISE STATED

Water was drawn by hand from two and pumped mechanically from the third. The coverings for all three of the above were inadequate, affording only minimal protection against external contamination. This in conjunction with natural soil pollution and the possibility of domestic pollutants from septic tank systems gaining access to the ground water table could possibly account for the high level of coliform organisms present in the three dug wells.

The chemical quality of both surface and subsurface supplies was generally satisfactory differing only in hardness and iron content.

d) Discussion

Results of the analyses performed on the chemical and bacteriological samples obtained during the survey indicate the need for a municipal water works system. Implementation of such a system would involve the installation of a new pumphouse upstream of Killarney and the incorporation of all existing water works systems and individual supplies into a single system. A proposed water works system for the Hamlet of Killarney is outlined in Appendix V. Implementation and methods of financing such a programme are outlined in Appendix II. Further, a statement issued by the Honourable George A. Kerr, Q.C., outlining two new programmes of financial aid is outlined in Appendix III.

## V POLLUTION SURVEY

### a) Field Work

The field work associated with this survey was carried out on July 22, 1969. Unfavourable weather conditions prevented sampling until later in the day.

A total of seven bacteriological and seven chemical samples were collected during the survey and submitted to the OWRC's Toronto Laboratory for analysis.

All of the above, except one road ditch sample, were obtained from the north shore of Killarney Channel. Evidence of pollutants entering the channel from the community were minimal, however, algal growths were noted in the regions utilized by large pleasure craft as a mooring area.

Chemical and bacteriological analyses results of the above survey can be found in Table IV.

### b) Presentation of Results

During the above survey, six bacteriological samples were obtained from Killarney Channel covering an area from Killarney Mountain Lodge (east end of Killarney) to the west end of the channel. The results of these samples indicate that the bacteriological quality of the surface water was within the recommended limit of 2400 coliform organisms per 100 ml for natural watercourses. However, a sample obtained from an open ditch located in the east end of Killarney and discharging into

TABLE IV

SUMMARY OF POLLUTION SURVEY RESULTS

LOCATION	NO.	DATE SAMPLED	BOD	SUSPENDED SOLIDS	PH AT LAB	PHENOLS IN PPB	TOTAL PHOS. AS P	NITROGEN AS N TOTAL KJELDAHL	FAECAL COLIFORM PER 100 ML	TOTAL COLIFORMS PER 100 ML
CHANNEL - KILLARNEY MOUNTAIN LODGE	S-1	JULY 22/69	0.4	5	8.6	0	0.18	0.14	180	1,700
DITCH-WEST OF KILLARNEY MOUNTAIN LODGE	D-1	"	0.8	60	9.8	5	0.14	0.56	110	27,500
CONFLUENCE OF DITCH AND KILLARNEY CHANNEL WEST OF KILLARNEY MOUNT. LODGE	S-2	"	0.4	5	9.0	0	0.03	0.20	< 10	120
CHANNEL - LCBO DOCK	S-3	"	0.8	5	8.5	0	0.02	0.40	20	650
CHANNEL - EAST OF SPORTSMAN INN	S-4	"	0.4	5	9.2	0	0.02	0.26	10	100
CHANNEL - WEST OF SPORTSMAN INN	S-5	"	0.4	5	9.1	0	0.02	0.35	30	110
CHANNEL - WEST END	S-6	"	0.8	5	8.5	0	0.03	0.45	< 10	320

\* ALL ANALYSES EXCEPT PH REPORTED IN PPM UNLESS OTHERWISE STATED

the channel revealed a bacteriological level of 27,500 coliform organisms per 100 ml, which exceeds the above recommended limit.

Chemical samples were obtained at all of locations sampled for bacteriological analyses. Results of the chemical analyses indicated that a minimal amount of pollution was gaining access to the channel from Killarney. Analysis of the sample obtained from the previously mentioned open ditch further indicated the presence of domestic wastes.

A summary of the chemical results can be found in Table IV.

c) Explanation of Results

Analyses results of both chemical and bacteriological samples collected from various points along Killarney Channel indicate that relatively few pollutants are gaining access to the channel from Killarney. However, high coliform counts in the dock area of Killarney Mountain Lodge and a mooring area for large pleasure craft in the vicinity of the Sportsman Inn would seem to indicate the immediate need for a pumping-station in order to properly dispose of sanitary wastes aboard pleasure craft.

The sample obtained from the ditch near the east end of Killarney indicated that residences whose property the ditch runs through may be utilizing the ditch as a means of sanitary waste disposal.



d) Discussion

The results of the chemical and bacteriological samples obtained during the above survey indicate that generally the existing sewage treatment facilities utilized by the local residents are adequate. However, the provision of a pump-out facility for the discharge ashore of holding tank wastes from pleasure craft should be considered. The pump-out station should be located in an area that is accessible to large pleasure craft and has satisfactory docking, re-fueling and maintenance facilities. The Sportsman Inn or Killarney Mountain Lodge should be considered as possible locations for the above mentioned facility.

A summary of the requirements of the Boating Regulation can be found in Appendix IV.

VI SUMMARY

A sanitary survey was carried out on July 23, 1969, in the Hamlet of Killarney. Analyses of the bacteriological and chemical samples obtained from surface and subsurface drinking water supplies indicated the need for a municipal water works system. Proposals and plans for such a system are outlined in Appendix V of this report.

A water pollution survey was carried out on July 22, 1969, and the analyses of bacteriological and chemical samples obtained at various points along Killarney Channel

indicated that the septic tank systems utilized by the majority of residents in the Hamlet are satisfactory. A relatively small amount of pollutants are reaching the channel from Killarney, however, a recommendation concerning the installation of an OWRC approved pump-out station for discharge ashore of holding-tank wastes has been included in this report due to the heavy traffic of large pleasure craft in Killarney Channel during the boating season.

#### VII RECOMMENDATIONS

1. It is recommended that the implementation of a Municipal water works programme as outlined in this report be instituted as soon as possible.
2. It is recommended that pump-out station be installed at a designated area for the discharge ashore of holding-tank wastes located aboard large pleasure craft that utilize Killarney Channel as a temporary moorings area during the boating season.

Prepared by:

Wayne B. Merritt  
W.B. Merritt, Technologist  
Division of Sanitary Engineering.

/ek

APPENDIX I

SIGNIFICANCE OF LABORATORY ANALYSES

TABLE IV

## DELETERIOUS INFLUENCES ON THE CHEMICAL QUALITY OF DRINKING WATER SOURCES

[illegible]

## APPENDIX I

### SIGNIFICANCE OF LABORATORY ANALYSES

#### Bacteriological Examination

The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. The objectives for surface water quality in Ontario is a maximum of 2400 organisms per 100 millilitres.

The OWRC Laboratories employ the Membrane Filter (MF) technique of examination to obtain a direct enumeration of coliform organisms. The Department of Health Laboratories use the Most Probable Member (MPN) enumeration and coliform counts are reported as Total Coliform Organisms (TC) and Faecal Coliform Organisms (FC).

#### Sanitary Chemical Analyses

##### Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (PPM) and is an indicated of the amount of oxygen required for the stabilization of decomposable organic or chemical matter in water. The completion of the laboratory test required five days, under the controlled incubation temperature of 20° Centigrade.

The OWRC objective for surface water quality is an upper limit of four (4) ppm.

### Solids

The value for solids, expressed in parts per million, is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses with regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, decomposition in streams and injury to the habitat of fish.

### Nitrogen

Ammonia Nitrogen or sometimes called free ammonia is the insoluble product in the decomposition of nitrogenous organic matter. It is also formed when nitrates and nitrites are reduced to ammonia either biologically or chemically. Some small amounts of ammonia, too, may be swept out of the atmosphere by rain water.

The following values may be of general significance in appraising free ammonia content: Low 0.015 to 0.03 ppm; moderate 0.03 to 0.10 ppm; high 0.10 or greater.

Total Kjeldahl is a measure of the total nitrogenous matter present except that measured as nitrite and nitrate nitrogens. The Total Kjeldahl less the Ammonia Nitrogen measures the organic nitrogen present. Ammonia and

organic nitrogen determinations are important in determining the availability of nitrogen for biological utilization. The normal range for Total Kjeldahl would be 0.1 to 0.5 ppm.

#### Nitrite Nitrogen

Nitrite is usually an intermediate oxidation of ammonia. The significance of nitrites, therefore, varies with their amount, sources, and relation to other constituents of the sample, notably the relative magnitude of ammonia and nitrite present. Since nitrite is rapidly and easily converted to nitrate, its presence in concentrations greater than a few thousandths of a part per million is generally indicative of active biological processes in the water.

#### Nitrate Nitrogen

Nitrate is the end product of aerobic decomposition of nitrogenous matter, and its presence carries this significance. Nitrate concentration is of particular interest in relation to the other forms of nitrogen that may be present in the sample. Nitrates occur in the crust of the earth in many places and are a source of its fertility.

The following ranges in concentration may be used as a guide: low less than 0.1 ppm; moderate 0.1 to 1.0 ppm; high greater than 1.0 ppm.

Anionic Detergents as ABS

The presence of anionic detergents as ABS is an indication that domestic waste is present.

Phenols

The presence of phenol or phenolic equivalents is generally associated with discharges containing petroleum products, or with wastes from some industries. It is generally conceded that adequate protection of surface waters will be provided if the concentration of phenols in waste discharges does not exceed 20 parts per billion (ppb). Phenolic type waste can cause objectionable conditions in water supplies and might taint the flesh of fish.

Iron

Water for domestic use should contain less than 0.3 parts per million of iron in order to avoid objectionable tastes, staining and sediment formation. Iron concentrations of not greater than 17 parts per million in waste discharges should permit adequate protection of surface waters.



APPENDIX II

IMPLEMENTATION OF WATER AND SEWAGE WORKS PROGRAMMES

## APPENDIX II

### IMPLEMENTATION OF WATER AND SEWAGE WORKS PROGRAMS

Currently, there are three general methods which may be utilized for implementing sewage and water works programs. These are: 1) to enter into an agreement with the OWRC for the construction of the treatment and collector works with an obligation to pay the debt retirement and operating charges over the term of the agreement with the facility reverting to the municipality at the end of the term of the agreement, 2) by requesting the provision of service from a Provincially-owned project, and 3) by proceeding with the construction independently and meeting capital costs by the sale of debentures.

#### OWRC/MUNICIPAL PROJECTS

For the construction of water and sewage works under agreement with this Commission, the works are provided and developed under Sections 39 to 46 of the Ontario Water Resources Commission Act.

For this type of arrangement, the Commission utilizes a sinking fund and consequently the annual payments are based on a specific debt retirement period and the payments are unchanged for the period of the agreement. This type of project may be financed over a period of time up to a maximum of

thirty years. The annual charges for projects constructed under this agreement are determined as follows:

1. Capital Repayment

As noted, OWRC financing is by the sinking fund method and an annual payment of approximately two per cent of the capital cost is required to retire a debt over a thirty-year period.

2. Interest

On new Commission projects, interest is calculated at the current rate.

3. Reserve Fund

To provide money for repairs and replacements, Section 40 of the Ontario Water Resources Commission Act provides for the establishment of a reserve fund by the Commission. It is important to note that this fund is established in the name of the municipality and the balance consequently earns interest. It has now been established by Commission minute that the reserve fund billing for each project shall continue only until the fund reaches an amount of ten times the initial annual billing and the reserve fund billing shall be re-imposed only when the fund has been depleted to 80 per cent or less of the maximum amount.

#### 4. Operating Costs

Under OWRC agreement, the municipality is responsible only for the operating costs directly attributed to the project in the municipality. Therefore, no charges are made by the Commission for the services of head office personnel who are available as required to advise on the satisfactory operation and maintenance of the project.

#### PROVINCIALY-OWNED WORKS

In June, 1967, the Honourable J.R. Simonett, Minister of Energy and Resources Management, made an announcement which expanded the authorization of this Commission for the provision of water supply and sewage treatment facilities. This new program allows the Commission to construct entire water and sewage works facilities for small municipalities. The capital costs of these can be amortized over a 40 year period.

A slight variation of this program could be implemented in that the municipality may request that this Commission provide only the major water and sewage works facilities as Provincially-owned works, and develop the water distribution and sewage collector systems under the standard type of Commission project. It would appear that where applicable, it would be more advantageous for the municipality

to proceed on the basis of requesting this Commission to develop entire systems as Provincially-owned works.

The associated cost of supplying these works, including amortization of capital costs, together with operating and maintenance charges, will be recovered by the sale of service to the affected municipalities by rates determined on a usage basis. These facilities will be wholly-owned by the Province of Ontario and the arrangements for service will be formalized by contracts between the Commission and the municipality concerned. The installations will be operated entirely at cost with appropriate provision for adjustment in rate.

#### DEVELOPMENT

If a municipality, after considering the alternatives, wishes this Commission to consider Provincially-financed projects, application forms should be completed and submitted together with a resolution of the Municipal council. A draft of the suggested wording of the resolution is included with the application forms.

If the proposed works are to be built by the municipality on its own initiative or as a formal project under agreement with this Commission, it is required that the Council retain a consulting engineer to prepare preliminary

engineering reports on the proposed work. If a Provincial system is contemplated, no action should be taken with respect to retaining a consulting engineering firm as the Commission will designate a consulting engineer to carry out the Provincial portion of the work and it would be advantageous if the municipal portion be studied and reported on by the same engineer.

APPENDIX III

TWO MAJOR FINANCIAL PROGRAMMES TO ASSIST  
MUNICIPALITIES IN PROJECTS RELATED TO  
SEWAGE AND WATER WORKS

STATEMENT

BY

THE HONOURABLE GEORGE A. KERR, Q.C.  
MINISTER OF ENERGY AND RESOURCES MANAGEMENT

REGARDING

TWO MAJOR FINANCIAL PROGRAMMES  
TO ASSIST MUNICIPALITIES IN PROJECTS  
RELATED TO SEWAGE AND WATER WORKS

THURSDAY, OCTOBER 16, 1969



Mr. Speaker:

On behalf of the government, I am pleased to announce the approval of two major financial programmes to assist municipalities in projects related to sewage and water works.

Approval has now been given to a submission by the Ontario Water Resources Commission that some assistance be granted by the Government of Ontario to small municipalities with high cost projects so that sewage and water works may be built for these communities. The programme approved will provide provincial assistance sufficient to ensure that the cost of a sewage works in a municipality will not exceed an average home charge of \$120 per year. The communities requiring such assistance are ones facing unusually high costs because of topography, type of soil or rock, which increases the charges for construction, or those with a small population and low assessment. The provincial assistance programme will ensure, where necessary, every municipality in Ontario will be able to have essential water and sewage works regardless of size.

In water servicing, when costs rise above \$100 per average home per year for a community, the province will grant assistance. The maximum contribution by the province

for both water and sewage works may not be greater than 50% of the total cost of the works. There may be a few cases, therefore, in very high cost projects, that the 50% grant may not be sufficient to meet all costs above \$120 or \$100 per year for sewage and water respectively. An example is Hali-burton, where provincial participation of an estimated \$739,000 will not be sufficient to reduce the sewage charge to \$120. The original charge of \$311 per home will be reduced, however, to \$155 per home by the application of this formula.

The importance of providing this assistance will be appreciated by the Honourable Members of this House, since there are a number of communities willing to install essential sewage and water works, but which find the costs are beyond their financial capacity to do so. In some cases the Ontario Municipal Board has had to ask that such projects be postponed because the project was beyond the financial capacity of the small community, even with provincial assistance through OWRC financing.

I believe that everyone in the province agrees that the programme to control pollution must ensure that all municipalities have adequate sewage treatment works. It is not realistic today to permit a small community, already established for many years, to go without the necessities of pure water

supply and treatment of wastes. Downstream users will benefit directly from such projects. Provincial assistance will average approximately 30% of the cost for municipalities under 5,000 population. In the year 1970-71 the provincial assistance would cost an estimated \$3,000,000 for both sewage and water systems, rising to \$12,000,000 in 1971-72 because of the backlog of projects which will get underway at that time. It should decrease in the years after that.

I want to stress to Honourable Members that provincial assistance for such small municipalities is to assist the existing community only and is for new works. The program would not apply to any future addition or extension of such new plant. In other works the province will work itself out of this problem by assisting those who need assistance now. The rate of \$120 for sewage per average home per year is above the cost of any of the larger communities who have either financed their own works or constructed such works with provincial assistance. The subsidy, therefore, does not create an advantage for small communities over the larger ones. I believe all members will agree that this is an excellent programme, indicating the seriousness with which the Ontario Government views the importance of establishing such works in all communities requiring them.

The government has also approved a proposal for financial assistance to ensure that area projects for sewage

and water may be oversized for future developments. To qualify, the oversizing must be beyond the needs of communities initially serviced. This is really in accordance with proper planning and engineering design principles and will ensure that adequate services will be available for the predicted population. Under this plan, the province may contribute 15% of the total capital cost of works.

We are facing such possible expansion in the areas of Sarnia and St. Thomas. An additional expenditure of approximately 15% will permit area schemes to substantially increase in capacity. This assistance will be granted after a careful review of the programme to ensure that growth in the area is in the best interests of the province. To date this assistance applies to the works constructed to serve the Lake Erie - St. Thomas Line, which will provide connections to the communities of Port Burwell, Southwold, Yarmouth, as well as St. Thomas and the industrial concerns north of St. Thomas. It also applies to the Lambton - Sarnia area water system, and permits increased capacity to be built into this line to service the Townships of Sarnia, Moore and Sombra and the Communities of Corunna, Courtright, Sombra, Port Lambton and Bridgen. The OWRC is presently studying such oversizing for a system in the Eastern Lake Erie Section North of Nanticoke.

It is becoming increasingly apparent to me that area programmes will become more essential, particularly guaranteeing

water supply for communities inland of the Great Lakes. It is no longer adequate for us to rely on ground water supply alone for rapidly developing Ontario communities. The increased capacity of such area programmes will permit both residential and industrial development to take place with advanced planning by those directly involved, under the general direction of the Department of Municipal Affairs.

The Government of Ontario is pleased to announce these new policies. This statement is to indicate to the House the seriousness with which we view the needs of servicing Ontario communities. The results can only be to the benefit of the entire province.

APPENDIX IV

REGULATION SUMMARY RELATED TO PUMP-OUT FACILITIES

APPENDIX IV  
REGULATION SUMMARY

A summary of the requirements of the Regulation is as follows:

1. Sewage must be retained in equipment approved by the Commission.
2. Equipment which will be approved for the purpose of the Regulation includes:
  - (a) Retention devices with or without recirculation features which retain all toilet waste for disposal ashore, and
  - (b) Incinerating devices which reduce to ash all sewage and toilet waste.
3. Approved equipment shall (1) be non-portable, (2) be constructed of structurally sound material, (3) have adequate capacity for expected use, (4) in the case of storage devices, be equipped with the necessary pipes and fittings conveniently located for pump-out by shore-based facilities, and (5) by properly installed.
4. Temporary chlorinator permits will not be issued after September 15, 1969. All permits expire June 1, 1971.

5. Out-of-provine visitors who are planning voyages of less than overnight duration, will be complying with the intent of the Regulation by agreeing not to use or permit the use of on board toilets that discharge or are capable of discharging sewage into the water.
6. All pleasure craft with a toilet or "head" aboard, including houseboats and charter cruisers, must have a holding tank or sewage treatment device.



A P P E N D I X   V

TOWNSHIP OF RUTHERFORD

and

GEORGE ISLAND

Suggested

Water Works System

## APPENDIX V

### Township of Rutherford and George Island

#### Suggested Water Works System

##### INTRODUCTION

It may be possible to provide the inhabitants of Killarney with safe drinking water at a reasonable cost by using the existing systems as part of a municipal system. This would entail the construction of a new pumphouse, intake, feeder, main, and connecting mains. The existing Central Water Line System could be connected directly to the system and it may be feasible to pressurize the Peter Lowe intake system for another large portion of the distribution system. A map is included in the pocket at the back of this report which shows the ultimate distribution system suggested for Killarney with the new mains required shown as dashed lines.

##### DESCRIPTION OF WORKS REQUIRED

The following table outlines the works needed to produce the system shown on the map entitled "Hamlet of Killarney, Suggested Water Works System".

<u>Item</u>	<u>Location</u>	<u>Details</u>	
1. Intake	Channel-west end	Length	- 200 ft.
		Diameter	- 6 in.
		Foot Valve and Strainer	
2. Pumping Station	See Map	Capacity	- 40 gpm.
		Storage	- 1000 gal.
			pressure tank
		Chlorination Equipment	
		Building to house above	

<u>Item</u>	<u>Location</u>	<u>Details</u>	
3. Supply Main	From Pumphouse to Channel St.	Length	- 250 ft.
		Diameter	- 4 in.
4. Trunk Main	Channel St. Supply Main to Charles St.	Length	- 1,500 ft.
		Diameter	- 4 in.
5. Distribution Mains	Channel St.	Length	- 750 ft.
		Diameter	- 2 in.
	Commissioner St.	Length	- 300 ft.
		Diameter	- 2 in.
6. Initial Looping Mains	Commissioner St.	Length	- 160 ft.
		Diameter	- 2 in.
	Paul St.	Length	- 575 ft.
		Diameter	- 2 in.
7. Ultimate Looping Mains	Bay St.	Length	- 1,200 ft.
		Diameter	- 2 in.
	Tilley St. and Ontario St.	Length	- 1,720 ft.

Items 1 through 6 should be provided in the initial stage of the works and the ultimate looping mains, item 7, can be constructed at some time in the future. The first stage would supply potable water to 93 per cent of the residents and the inclusion of the second stage would increase the service coverage to 99 per cent of the Hamlet.

#### DISCUSSION

Because of the economy of the area it is essential that the cost of the system be kept as low as possible. In addition to using the existing network of pipes, pumping and chlorinating equipment from the Killarney Central Water Line could be used as well as that from the Killarney Mountain Lodge

system (providing that the Lodge connects to the system). To minimize construction costs it is suggested that local help be used and that technical advice and assistance be provided by the OWRC. In this way, a satisfactory central water supply for the Hamlet can be developed at a very low cost.

RECOMMENDATION

If the municipality agrees to proceed with the establishment of a communal water system for the Hamlet, a preliminary report should be prepared by staff of the OWRC.

APPENDIX VI

SAMPLE INFORMATION SHEET

# SANITARY SURVEY

Township of Rutherford and George Island

Point 8

Date 23 - 7 - 69

Inspector RJH

Name Miss Beatrice Roque

Mailing Killarney, Ontario

Address \_\_\_\_\_

Water Individual ☒ Communal Intake (4)

Supply Source Channel

Problems Water Boiled

Sewage Type Septic Tank - 150 ft. of weeping tile

Disposal Problems Nil

General \_\_\_\_\_

Remarks \_\_\_\_\_

Samples Chemical ☐ Bacteriological ☒

Results: Total Coliforms \_\_\_\_\_  
Faecal Coliforms \_\_\_\_\_  
Background Organisms \_\_\_\_\_

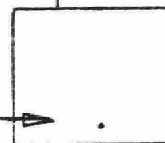
## Location Map

Lot 60 x 100 size Lot 6000 sq.ft. area

Tile Bed



Septic Tank



3 Homes

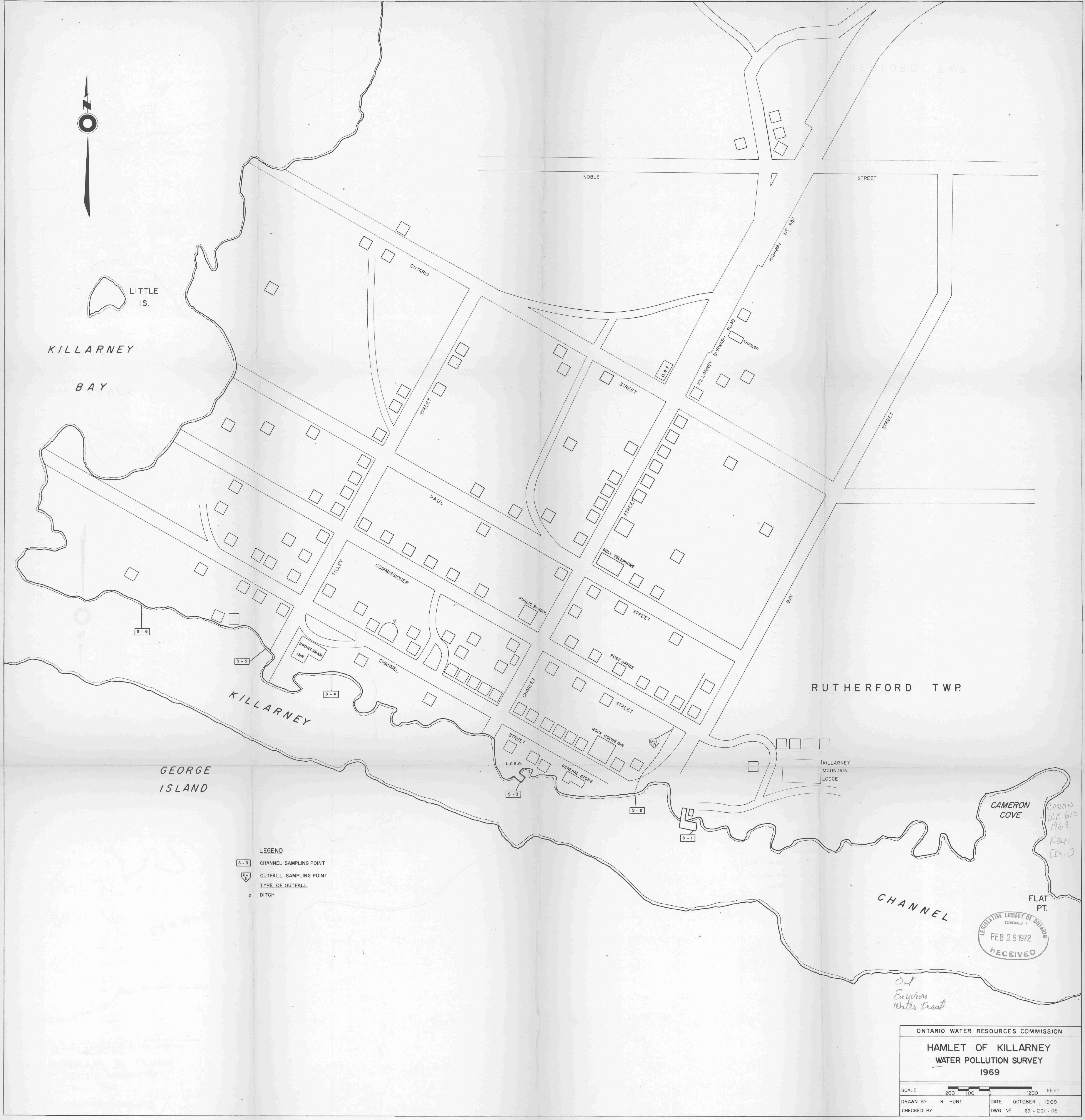


Channel Road



Killarney Channel





- LEGEND
- S-3 CHANNEL SAMPLING POINT
  - S-1 OUTFALL SAMPLING POINT
  - TYPE OF OUTFALL
  - D DITCH

CASON  
WR 610  
1969  
K341  
[no.]

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ONTARIO WATER RESOURCES COMMISSION	
HAMLET OF KILLARNEY WATER POLLUTION SURVEY 1969	
SCALE	200 100 0 200 FEET
DRAWN BY	R HUNT
DATE	OCTOBER, 1969
CHECKED BY	DWG. NO. 69-201-DE



\*96936000009176\*